

## **REMARKS**

Claims 8-21 were previously presented. The features of previously presented claim 14 have been amended into independent claim 8. Therefore, claim 14 is cancelled. Claims 22-24 are newly added. Thus, claims 8-13 and 15-24 are all the claims pending in the application. Claims 8-13 and 14-21 stand rejected on prior art grounds. Applicants respectfully traverse these rejections based on the following discussion. The following paragraphs have been numbered for ease of future reference.

### **I. The Prior Art Rejections**

[0001] Claims 8-13 and 14-21 stand rejected under 35 U.S.C. §102(e) as being anticipated by Crampton et al., (U.S. Publication No. 2003/0149631), hereinafter referred to as Crampton. Applicants respectfully traverse these rejections based on the following discussion.

[0002] The Applicants submit that the cited prior art reference does not teach or suggest the following features of amended independent claim 8 (or the similar features in amended independent claims 15 and 21): (1) “deriving a demand item from said customer order, said demand item comprising a part number of said part numbers and said customer location” or subsequently “deriving additional demand items from said customer order...”; (2) “identifying in said supply chain network a set of stocking points for said part number that have shipping routes connected to said customer location”; (3) “removing said inactive supply stocking points from said set of stocking points to form a set of active stocking points”; (4) “for each one of said additional demand items, repeating said exploding and said imploding so that said set of active

stocking points is updated to comprise all active stocking points for all part numbers in said customer order”; and (5) “after said repeating, inputting said set of active stocking points into said production planning system, wherein said production planning system allocates said active stocking points in said set of active stocking points to said customer order to produce a material allocation plan”.

[0003] The Applicants submit that the cited prior art reference also does not teach or suggest the more limited features of amended independent claim 15 wherein the processes (exploding, imploding, removing, deriving, repeating, etc.) are further repeated for each one of the customer orders “such that said set of active stocking points is further updated to comprise all active stocking points for all of said part numbers for all of said customer orders. Thus, in independent claim 15, the production planning system allocates the active stocking points in the set of active stocking points, as formed and updated, to not just one customer order, but to all customer orders to produce a material allocation plan.

[0004] More particularly, the Office Action provides that Crampton discloses “• deriving a demand item from said customer order, said demand item comprising a part number of said part numbers and said customer location (see id; see also paragraph 99: lines 1-10; paragraph 103: lines 1-9) •exploding said demand item through said supply chain network to identify a set of stocking points for said part number that have shipping routes connected to said customer location (see paragraph 131: lines 9-21; paragraph 132); • imploding said demand item through said set of stocking point to: • identify ones of said stocking points that have the current ability to supply said part number as active stocking points (see paragraph 131: lines 38-41; paragraph 133); and • identify ones of said stocking points that do not have the current ability to supply said

part number as inactive stocking points (see id.); • removing said inactive supply stocking points from said set of stocking points to allow only active stocking points to remain (see paragraphs 131, 135); and • allocating said active stocking points to said customer order using said production planning system to produce a material allocation plan (see paragraph 131: lines 55-58)”. The Office Action further provides that Crampton discloses “• deriving additional demand items from said customer order, each of said additional demand items comprising a different part number of said part numbers and said customer location (see paragraph 95: lines 38-46; paragraph 131: lines 58-61); and • repeating said exploding and said imploding for said additional demand items derived from said customer order to produce a set of active stocking points (see paragraph 131: lines 58-61).” The Applicants respectfully disagree.

[0005] Per the Abstract, Crampton teaches a system and method for planning the utilization of resources in order to meet demand as defined by an order. The system and method is an attribute-based system and method that may be part of an overall system and method for planning the use of supply chain network resources. The system and method attempts to fulfill an order by determining the best location-resource-bucket opportunity. The method and system may use several user define criteria as well as evaluating each acceptable resource's ability to supply the requested goods through inventory, manufacture, purchase and/or substitution. That is, Crampton deals with the problem of planning for the use of manufacturing resources to meet demand (i.e., with scheduling the use of resources, such as assembly lines and storage facilities, in a manufacturing or supply chain network) (see paragraphs [0005]-[0006]). The invention of Crampton provides a system and method for generating plans for the use of multiple such resources at multiple locations to fulfill the orders (see paragraph [0012]).

[0006] Paragraph [0099] describes orders received by a manufacturer from a customer. An order comprises a SKU with the name of the goods (e.g., a sedan) and a location (referring to a manufacturing location). Multiple subordinate SKUs associated with a finished good SKU can be identified for different configurations of the desired SKU (e.g., sedans with/without power steering options).

[0007] Paragraph [0130] of Crampton refers to step 228 of Figure 2B, wherein the use of resources from one or more locations are planned to fulfill an order. The algorithm processes orders (i.e., plans/schedules resources to fulfill orders) one at a time evaluating potential assignments (buckets, resource and location) for a selected order. A bucket is a time interval (see paragraph [0063]). As mentioned above, a resource is, for example, an assembly line or storage facility, that needs to be scheduled in order to fulfill an order (see paragraph [0006]) and a location is a location at which resources are located (see paragraph [0012]). The algorithm selects the most suitable assignment (i.e., the most suitable bucket, resource, location) for the selected order by assessing the assignment using a user-defined multi-tiered objective function and ensuring that the assignment (i.e., of bucket-resource-location) is feasible with respect to both material and capacity constraints.

[0008] Paragraph [0131] of Crampton refers to Figure 4, which sets out the process flow for completing step 228 of Figure 2B (i.e., for selecting an order and planning to fulfill the order by optimal utilization of resources). At step 402, an order is selected for processing. Every order has an item and it may have a location preference. If it has both, the finished good SKU has been identified. If the order only has an item, then the system will generate a prioritized list of SKUs with feasible locations. At step 404, prioritize admissible/feasible locations for the

order item and, if applicable, for a given configuration of that order item (i.e., generate a prioritized list of SKUs). Each SKU associates an item and a location and a FG SKU refers to a finished good stock keeping unit or the SKU that has a finished good (see paragraph [0090]). At step 406, an SKU from a selection of FG SKUs is selected for planning. At step 408, each FG SKU is initialized so that the FG SKU will have all of the attributes of the corresponding order and/or item. At step 410, determine which resources are acceptable resources to use for planning the SKU and sort according to priority. At step 411, select acceptable resource with highest priority. At step 412, make a material feasibility determination to determine whether the location/resource has sufficient materials to satisfy demand and, if not, whether the material is replenishable. At step 418, the bucket/resource opportunities for the FGSKU are evaluated and the best opportunity is selected for the location. After evaluating the bucket/resource opportunity for a specific location, determine whether there are other resources to be checked at step 420. At step 424, determine whether there are any more acceptable locations. At step 428, assign the order to the best location/resource/bucket. At step 430 determine whether any more orders need to be planned. If there are other orders to be planned then the process 400 restarts from step 402.

[0009] Paragraph [0133], also cited in the rejection, provides an explanation of processes 412-414 of Figure 4. Specifically, at step 410, a previously selected order-location pair (O1-LOC1) is reviewed and a determination of a list of acceptable resources for manufacturing the order O1 at the location LOC1 is made and sorted by preferences. At step 412, an attempt is made to schedule the order at the first resource RS11 (as mentioned above a resource is, for example, an assembly line) on which the order O1 can potentially be manufactured at the location LOC1. At step 414, the combination O1-LOC1-RS11 is scheduled, evaluated and

graded. Paragraph [0134] provides that steps 412-414 are repeated for each resource. Then, the graded scheduling opportunities for each combination are compared to determine the best for LOC1. Paragraph [0135] provides that the process is repeated for LOC2.

[0010] Thus, Crampton discloses, that each order for a single item (or subordinate order thereof for a specific configuration of the single item) is processed (i.e., planned) separately. Specifically, orders are prioritized and processed in priority sequence. That is, for the highest priority, the Crampton method comprises determining a list of resources that can be used to manufacture the order, prioritizing the resource list (E.g., based on feasibility), attempting to schedule manufacturing using the first resource on the list, and then evaluating and grading the scheduling opportunity. Graded scheduling opportunities for each resource on the list for a given location are then compared to determine the best scheduling opportunity for a given location. This is followed by a comparison of the best scheduling opportunities from the different locations to determine the best combination for fulfilling the order. Once the best combination (O-LOC-RS) is determined, the highest priority order is assigned to that best combination. As mentioned above, this planning process is repeated for the next highest priority order and so on.

[0011] First, the Applicants submit that Crampton does not teach “deriving a demand item from said customer order, said demand item comprising a part number of said part numbers and said customer location” or subsequently “deriving additional demand items from said customer order, each of said additional demand items comprising a different part number of said part numbers). That is, the cited portion of Crampton refers to different configurations for the same single demand item (e.g., a sedan). It does not refer to deriving different demand items from a single customer order, where each demand item comprises a different part number

selected from one of multiple part numbers listed in the order.

[0012] Second, the Applicants submit that nowhere in Crampton does it teach or suggest the exploding process identifies a set of stocking points where the stocking points are “for said part number that have shipping routes connected to said customer location”, as claimed. In fact paragraph [0148] of Crampton appears to teach away from this point. It should be noted that this argument was previously presented, but not addressed in the final rejection.

[0013] Finally, the Applicants submit nowhere in Crampton does it teach or suggest the limitations in amended independent claim 8 (and similarly in amended independent claims 8 and 21) of “removing said inactive supply stocking points from said set of stocking points to form a set of active stocking points”; “for each one of said additional demand items, repeating said exploding and said imploding so that said set of active stocking points is updated to comprise all active stocking points for all part numbers in said customer order”; and “after said repeating, inputting said set of active stocking points into said production planning system, wherein said production planning system allocates said active stocking points in said set of active stocking points to said customer order to produce a material allocation plan”. Even more specifically, the Applicants submit that nowhere in Crampton does it teach or suggest the more limited features of amended independent claim 15 wherein the processes (exploding, imploding, removing, deriving, repeating, etc.) are further repeated for each one of the customer orders “such that said set of active stocking points is further updated to comprise all active stocking points for all of said part numbers for all of said customer orders” and, thus, such that the production planning system allocates the active stocking points in the set of active stocking points, as formed and

updated, to not just one customer order, but to all customer orders to produce the material allocation plan.

[0014] Specifically, as described in paragraphs [0130]-[0133] and summarized above, the step-by-step process in Crampton determines the best scheduling opportunity combination for an order and allocates locations/resources based on that best scheduling opportunity combination. It then repeats this process of determining the best scheduling opportunity combination for the next order and allocate locations/resources for that next order and so on. When processing each order individually, Crampton may eventually eliminate stocking points that are not currently capable of supplying a part number (e.g, during a feasibility assessment), but it does not do so preemptively for all part numbers in a given customer order (as in claim 8 and 21) or for all part numbers in all of the customer orders (as independent claim 15), prior to any actual planning/scheduling of the orders using a production planning system. The present invention has an advantage over Crampton in that it considers less data during the allocation process itself (be it for a single order or for multiple orders) and, thereby, shows improvement in runtime. Specifically, because the imploding and removing processes of the present invention allow inactive stocking points to preemptively be removed from consideration, the allocation process is performed by the production planning system using a set of active stocking points only for all part numbers in an order or for all part numbers in all orders (not a set of all FG SKUs, as in Crampton). Since only active stocking points (and, more particularly, active stocking points that have shipping routes connected to the customer location) are considered, the amount of data processed by the planning system is significantly reduced and, thereby, so is the runtime.

[0015] Therefore, the Applicants submit that amended independent claims 8, 15 and 21,



are patentable over the cited prior art reference. Further, dependent claims 9-13, 16-20 and 22-24 are similarly patentable, not only by virtue of their dependency from a patentable independent claim, but also by virtue of the additional features of the invention they define. Moreover, the Applicants note that all claims are properly supported in the specification and accompanying drawings, and no new matter is being added. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejections.

## **II. Formal Matters and Conclusion**

[0016] With respect to the rejections to the claims, the claims have been amended, above, to overcome these rejections. In view of the foregoing, Applicants submit that claims 8-21, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. Therefore, the Examiner is respectfully requested to reconsider and withdraw the rejections to the claims and further to pass the above application to issue at the earliest possible time.

[0017] Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary. Please charge any deficiencies and credit any overpayments to Attorney's Deposit Account Number 09-0456.

Respectfully submitted,

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